

60130-2053
00MRA0265AMENDMENTIN THE SPECIFICATION:

Please amend paragraph 30 as follows:

A pawl (also known as a detent) 22 is pivotally mounted to the chassis 12 at a pivot 24. The pawl 22 includes ~~ana_pawl~~ abutment 26 engageable with a corresponding ~~closed_claw~~ abutment 28 of the claw 14 to hold the claw 14 in the fully closed position as shown in Figure 1. The ~~pawl~~ abutment 26 can additionally contact ~~ana_claw~~ abutment 34 of the claw ~~1214~~ to hold the claw ~~1214~~, and hence the door, in a first safety position whereby the door is not fully closed, but nevertheless will not open. The pawl 22 is biased in a clockwise direction when viewing Figure 1 by a spring 23 (shown schematically). A striker 30 mounted on another fixed structure of the vehicle, such as a B- post or a C-post (not shown), is retained within the mouth 32 of the claw 14 to keep the door in a closed position.

Please amend paragraph 32 as follows:

A power actuator arrangement 45 includes a power actuator in the form of an electric motor 46 mounted on the chassis 12 and operable to rotate a worm gear 48. The power actuator arrangement 45 also includes a drive mechanism 11 which operates to allow the motor 46 to unlatch the latch ~~10-arrangement_10~~. The drive mechanism 11 allows the latch arrangement 10 to be fully returned to a fully latched condition in the event of motor failure.

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Please amend paragraph 37 as follows:

A clutch link 80 (shown in Figures 5 and 15) is generally elongate and includes a pivot pin 81 at a lower end. The pivot pin 81 mounts in an elongate holeslot 82 of the chassis 12 and is biased to a central position of the elongate holeslot 82 by springs (not shown). As shown in Figure 5, a further clutch pin 83 (also known as a clutch member) at an upper end of the clutch link 80 projects from both sides of the clutch link 80. An end 83A of the clutch pin 83 can engage the abutments 70A, 70B, 70C or 72A, 72B, 72C, as described below. An end 83B of the clutch pin 83 engages in the slot 89 of an unlatching lever 86, as described below. The clutch pin 83 (clutch member) includes the link portion (a clutch link 80) which, as described below, selectively couples the worm wheel 50 to the unlatching lever 86.

Please amend paragraph 40 as follows:

Figure 10 schematically illustrates a manually actuatable element in the form of a door handle 94 connected via a mechanical transmission path 95 (shown schematically) to the unlatching lever 86. In the event of power failure to the motor 46, operation of the door handle 94 moves the unlatching lever 86 counter-clockwise about the pivot 24 to move the detent 16 to release the latch arrangement 10. The door handle 94 includes a sensor 96 that detects an initial movement of the door handle 94, thereby detecting an unlatching requirement.

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Please amend paragraph 41 as follows:

Figures 1 and 4 illustrate the latch arrangement 10 in a latched closed position whereby the striker 30 is retained in the mouth 32 of the claw 14. The claw 14 is held in the position shown in Figure 1 by the pawl 22. The end 42A of the ajar lever 38 is positioned at radius R1 from the pivot 16. The ajar lever 38 is positioned in its most counter-clockwise position, and the end 44A of the second arm 44 is positioned in its most raised position. The unlatching lever 86 is biased in a clockwise direction by the associated spring 23 to align the pawl abutment 26 of the pawl 22 with the claw abutment 28 of the claw 14. With the latch arrangement 10 in the latched closed position, the position of the unlatching lever 86 dictates the position of the end 83B of the clutch pin 83 of the clutch link 80. This is because the end 83B is positioned within the slot 89 of the unlatching lever 86. Thus, the clutch pin 83 is positioned as shown in Figure 4, and the end 83A of the clutch pin 83 lies in the path of the circumferentially orientated abutment 70B when the worm wheel 50 is rotated in a counter-clockwise direction, as described below. The longitudinal position of the clutch link 80 is dictated by the biasing of the pivot pin 81 to the central position of the slot 82 by the springs (not shown).

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Please amend paragraph 43 as follows:

When the latch arrangement 10 is to be opened electrically, the vehicle user generates an opening signal, either by operating a remote control device (not shown) or by an initial movement of an inside or outside door handle 94, creating a signal from a sensor 96. When the opening signal is generated, power is fed to the motor to rotate the worm wheel 50 about 120° in a counter-clockwise direction to the unlatched closed position shown in Figure 6. The abutment 70B will move into engagement with the end 83A of the clutch pin 83 and will therefore drive the clutch pin 83 to the position shown in Figure 6. The abutment 70B (and in particular its angle and width), the slot 82, and the biasing of the pivot pin 81 within the slot 82 are arranged such that the pin 83A remains in engagement and is driven by the abutment 70B throughout the 120° rotational movement of the worm wheel 50.

Please amend paragraph 45 as follows:

Because the unlatching lever 86 is coupled to the pawl 22, the pawl 22 also rotates in a counter-clockwise direction such that the pawl abutment 26 of the pawl 22 disengages from the claw abutment 28 of the claw 14, thereby freeing the claw 14 for counter-clockwise rotation, unlatching the latch arrangement 10 and freeing the striker 30 from the mouth 32.

Please amend paragraph 48 as follows:

As shown in Figure 6, the pawl abutment 26 has been disengaged from the claw abutment 28, and rotation of the worm wheel 50 stops by virtue of the stop lever 74, but the claw 14 has not yet started to rotate (the pivot pin 81 is still located in the narrow portion 89A of the slot 89). The claw 14 and the ajar lever 38 are still in the position shown in Figure 1, and the latch arrangement 10 is in the unlatched closed position.

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Please amend paragraph 49 as follows:

The clutch pin 83 has acted as a clutch member and has selectively coupled the abutment 70B (a driving abutment) of the drive mechanism 11 with the edge 89C (a driven abutment) of the slot 89 of the unlatching lever 86, and therefore the pawl 22 (since the unlatching lever 86 is rotationally fast with the pawl 22). The path traversed by the clutch pin 83 when moving from Figure 1 to Figure 6 is generally arcuate and centred on the axis of the worm wheel 50. This path is known as a first path 1, shown in Figure 16.

Please amend paragraph 50 as follows:

Once the claw 14 starts to rotate in a counter-clockwise direction, the periphery 36 will pass under the end 42A of the ajar lever 38 such that the region at radius R1 moves away from the end 42A, and the region at radius R2 is moved under the end 42A, allowing the end 42A to move from radius R1 to radius R2, i.e. towards the pivot 16 and resulting in the ajar lever 38 rotating in a clockwise direction. The end 44A of the second arm 44 of the ajar lever 38 moves generally downwardly to contact and then move the pivot pin 81 generally downwardly within the slot 82 to the position shown in Figure 7. The generally downwardly movement of the pivot pin 81 causes a similar generally downwardly movement of the clutch pin 83, which disengages the end 83A from the circumferentially oriented abutment 70B and disengages the end 83B from the edge 89C. The end 83B thus moves from the narrow portion 89A to the wide portion 89B of the slot 89. As shown in Figure 7, the clutch pin 83 is now free to move to the right (though it has not yet done so). Thus, the ajar lever 38 in conjunction with the clutch link 80 act to disengage the clutch pin 83 from the abutment 70B.

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Please amend paragraph 51 as follows:

Because the unlatching lever 86 is biased in a clockwise direction by the spring 23, it pushes the clutch pin 83 to the right. Figure 8 shows the clutch pin 83 moving to the right (under the action of the spring 23), and Figure 9 shows the clutch pin 83 in its fully unlatched open position. Note that in both Figures 8 and 9, the clutch pin 83 is in the wide portion 89B of the slot 89.

Please amend paragraph 55 as follows:

During the subsequent slamming of the door, the worm wheel 50 and the stop lever 74 will not move. As the claw 14 rotates to the closed position, the pawl abutment 26 will initially ride over the claw abutment 34 of the claw 14, causing the pawl 22 and the unlatching lever 86 to momentarily rotate clockwise and counter-clockwise. The momentary clockwise and counter-clockwise rotation will be repeated as the pawl abutment 26 rides over the claw abutment 28 of the claw 14.

Please amend paragraph 57 as follows:

An open and closing sequence will cause the worm wheel 50 to index through about 120° in this example. Thus, starting at the position shown in Figure 1, an opening signal generated by the initial movement of the inside or outside door handle 94 (as described above) will not result in power opening in the event of battery failure of the vehicle. However, continued movement of the inside or outside door handle 94 by the user will result in features (not shown) rotating the pawl 22 in a counter-clockwise direction (under manual power) to the door.

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Please amend paragraph 58 as follows:

In the event that the motor fails partially through an opening sequence, the latch arrangement 10 can be opened and safely closed. Thus, with reference to Figure 10, the worm wheel 50 has been rotated through approximately 60° in a counter-clockwise direction whereupon the motor has failed.

Please amend paragraph 59 as follows:

In view of the fact that the motor was initially activated by movement of the inside door handle 94 (generating a signal via the sensor 96), the user will continue to move the inside door handle 94 to the open position and expect that the latch arrangement 10 will be powered open. However, in this case, the latch arrangement 10 is not powered open, but the user will continue to move the door handle 94 to the fully open position and manually open the latch arrangement 10 via the mechanical transmission path 95. The user will notice that the force required to move the door handle 94 increases, indicating a malfunction that will require later rectification.

Please amend paragraph 60 as follows:

Figure 10 shows the latch arrangement 10 in a fully unlatched condition. When compared to Figure 9, the differing positions of the circumferentially orientated abutment 70B indicate that the worm wheel 50 shown in Figure 10 has not rotated as far as the worm wheel 50 shown in Figure 9. In both cases, the latch arrangement 10 is fully open and hence the ajar lever 38 is in the same position. Since the end 44A of the second arm 44 of the ajar lever 38 abuts the pivot pin 81, then the clutch link 80 is in a lowered position in both cases and hence the end 83B sits in the wide portion 89B.

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Please amend paragraph 61 as follows:

Figure 10 shows that the end 83A of the clutch pin 83 is biased into the abutment with the radially inwardly orientated abutment 72B. Because the clutch pin 83 is located in the wide portion 89B of the slot 89, the unlatching lever 86 can move to the fully clockwise position, and the pawl 22 can move to the fully clockwise position.

Please amend paragraph 65 as follows:

The present invention provides for a latch arrangement 10 which, if the motor does not complete an unlatching sequence and the latch is opened manually, the unlatching lever 86 will nevertheless always return fully to its rest position ensuring full engagement between the pawl abutment 26 and the claw abutment 28 or 34 depending upon whether the door is fully closed or in a first safety position. A pawl 22 which is only partially engaged with the corresponding claw abutment 28 or 34 of the claw 14 provides a safety hazard, since a user would believe the door to be properly closed, but because of only partial engagement between the pawl 22 and the claw 14, there is a danger that the pawl 22 can disengage from the claw 14 and allow the door to unexpectedly open.

Please amend paragraph 68 as follows:

Alternatively, a micro switch could be used (e.g., positioned at arrow M Figure 6) to detect when the top of the clutch link 80 has just moved to the position shown in Figure 6. In another embodiment, a micro switch could be positioned (e.g., at N Figure 6) to detect an initial movement of the releaseunlatching lever 86 as it starts to move from the position shown in Figure 6 to the position shown in Figure 7.